

CLAIMS

What is claimed:

1. A control circuit of a MOSFET for synchronous rectification that applies a gate voltage between a gate and a source of a MOSFET during a period in which a current flows from the source of the MOSFET toward a drain thereof, the control circuit comprising:

a first current supplying unit;

a first diode with an anode connected to an output side of the current supplying unit and a cathode connected to the drain of the MOSFET;

a resistor connected between the above-described anode and the source of the MOSFET;

a voltage comparing unit that compares a voltage across the resistor to a first reference voltage ; and

a gate driving unit that amplifies an output signal of the voltage comparing unit and applies a gate voltage between the gate and the source of the MOSFET.

2. The control circuit of a MOSFET for synchronous rectification according to claim 1 wherein the first reference

voltage for the voltage comparing unit is supplied from a reference current source with a constant voltage value.

3. The control circuit of a MOSFET for synchronous rectification according to claim 1 wherein the first reference voltage for the voltage comparing unit is taken as a forward voltage drop generated when a current is made to flow from a second current supplying unit to a second diode.

4. The control circuit of a MOSFET for synchronous rectification according to claim 5 wherein the first diode and the second diode have forward temperature characteristics approximately identical with each other.

5. The control circuit of a MOSFET for synchronous rectification according to claim 1 wherein a gate voltage for the MOSFET is not generated when a difference between the voltage across the above-described resistor and the first reference voltage becomes equal to or less than a certain value.

6. The control circuit of a MOSFET for synchronous rectification according to claim 1 wherein a saturable reactor

is connected between the drain of the MOSFET and the cathode of the first diode.

7. The control circuit of a MOSFET for synchronous rectification according to claim 1 wherein the control circuit is an IC chip mounted on a chip of the MOSFET.

8. The control circuit of a MOSFET for synchronous rectification according to claim 1 wherein a magnetic material having a saturable characteristic is arranged around the control circuit made up into an IC chip mounted on the chip of the MOSFET.

9. The control circuit of a MOSFET for synchronous rectification according to claim 1 wherein a magnetic material having a saturable characteristic is arranged around the MOSFET.